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## FIGURE 1

### CD8 $\alpha$ -chain sequences

NM\_001768 & M27161  
Homo sapiens (Human)  
Complete CD8 alpha mRNA

### Predicted polypeptide sequence

MALPVTALLLPLALLLHAARPSQFRVSPLDRTWNLGETVELKCQ  
VLLSNPTSGCSWLFQPRGAAASPTFLLYLSQNKPKAAEGLDQRFSGKRLGDTFVLT  
SDFRRENEGYYFCSALSNSIMYFSHFVPVFLPAKPTTTPAPRPPTPAPTIASQPLSLR  
PEACRPAAGGAVHTRGLDFACDIYIWAPLAGTCGVLLLSLVITLYCNHRNRRRVCKCP  
RPVVKSGDKPSLSARYV

### mRNA

1 gaaatcaggc tccgggccgg ccgaagggcg caacttccc ccctcggcgc ccacccggct  
61 cccgcgcgcc tcccctcgcg cccgagctc gagccaagca gcgtcctggg gagcgcgtca  
121 tggccttacc agtgaccgcc ttgctcctgc cgctggcctt gctgctccac gccgccaggc  
181 cgagccagtt ccgggtgtcg ccgctggatc ggacctggaa cctgggcgag acagtggagc  
241 tgaagtcca ggtgctgctg tccaaccga cgctgggctg ctgctggctc ttccagccgc  
301 gcggcgccgc cgccagtcac accttctcc tataccttc caaaaacaag cccaaggcgg  
361 ccgaggggct ggacaccag cggttctcg gcaagaggtt gggggacacc ttgctccta  
421 ccctgagcga ctccgccga gagaacgagg gctactatt ctgctggcc ctgagcaact  
481 ccatcatgta ctcagccac ttctgcccg tcttctgcc agcgaagccc accacgacgc  
541 cagcgccgcg accaccaaca ccggcgcca ccatcgctc gcagcccctg tccctgcgcc  
601 cagaggcgtg ccggccagcg gcggggggcg cagtgcacac gagggggctg gacttcgcct  
661 gtgatatcta catctggcg ccctggccg ggacttggtg ggtccttc ctgtcactgg  
721 ttatcacct ttactgaac cacaggaacc gaagacgtg ttgcaaatgt ccccgccctg  
781 tggtaaatc gggagacaag ccagccctt cggcgagata cgtctaacc tgtgaacag  
841 ccactacatt actcaaaact gatacctc ctttgaggg agcaagtcct tcccttcat  
901 tttccagt cttctccct gtgtattcat tctatgatt attatttag tgggggcggg  
961 gtgggaaaga ttacttttc ttatgtgt tgacgggaaa caaaactagg taaaatctac  
1021 agtacaccac aaggtcaca atactgtgt gcgcacatc cggtagggcg tggaaagggg  
1081 caggccagag ctaccgcag agttctcaga atcatgctga gagagctgga ggcacccatg  
1141 ccatctaac ctctccccg cccgtttac aaagggggag gctaaagccc agagacagct  
1201 tgatcaaagg cacacagca gtcagggtg gagcagtagc tggagggacc ttgtctcca  
1261 gctcagggt cttctcca caccattcag gtcttctt cggagcccc tgtctcagg

## FIGURE 1

1321 tgagggtgctt gaggctccaa cggcaaggga acaagtactt ctgatacct gggatactgt  
1381 gcccagagcc tcgaggaggt aatgaattaa agaagagaac tgccttggc agagttctat  
1441 aatgtaaaca atacagact tttttttt ataatacagc ctaaaattgt atagacctaa  
1501 aataaaatga agtggtagc ttaacctgg aaatgaatc cctctatctc taaagaaaat  
1561 ctctgtgaaa ccctatgtg gaggcggaat tgctctcca gccctgcat tgcagagggg  
1621 cccatgaaag aggacaggct accccttac aaatagaatt tgagcatcag tgaggtaaa  
1681 ctaaggccct ctgaatctc tgaattgag atacaaacat gttcctggga tcatgatga  
1741 cttttatac ttgtaaaga caattgttg agagccctc acacagccct ggcctctgct  
1801 caactagcag atacagggat gaggcagacc tgactctctt aaggaggctg agagcccaaa  
1861 ctgctgtccc aaacatgcac ttccttgctt aaggatggt acaagcaatg cctgccatt  
1921 ggagagaaaa aacttaagta gataaggaaa taagaaccac tcataattct tcacctagg  
1981 aataatctcc tgtaatatg gtgtacattc ttcctgatta tttctacac atacatgtaa  
2041 aatatgtctt tctttttaa ataggggtgt actatgctgt tatgagtggc ttaatgaat  
2101 aaacattgt agcatcctct ttaatgggta aacagcaaaa aaaaaaaaaa aaaaaaaaaa  
2161 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa  
2221 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a

## FIGURE 1

NM\_171827

Homo sapiens secreted protein derived from alternate transcript

### Predicted polypeptide

MALPVTALLLPLALLLHAARPSQFRVSPLDRTWNLGETVELKCQVLLSNPTSGCSWLFQPRGAAASPTFL  
LYLSQNKPKAAEGLDTQRFSGKRLGDTFVLTLSDFRRENEGYYFCSALSNSIMYFSHFVPVFLPAKPTTT  
PAPRPPTPAPTIASQPLSLRPEACRPAAGGAGNRRRVCKCPRPVVKSGDKPSLSARYV

### mRNA

1 gaaatcaggc tccgggccgg ccgaagggcg caacttccc cctcggcgc ccacccggt  
61 cccgcgcgcc tccctcgcg ccgagcttc gagccaagca gcgtcctggg gagcgcgtca  
121 tggccttacc agtgaccgcc ttgctctgc cgctggcctt gctgctccac gccgccaggc  
181 cgagccagtt ccgggtgtcg ccgctggatc ggacctgaa cctgggcgag acagtggagc  
241 tgaagtcca ggtgctgtg tccaaccga cgtcgggctg ctgctggctc ttccagccgc  
301 gcgggcgcgc cgccagtccc acctctctc tatacctctc caaaacaag cccaaggcgg  
361 ccgaggggct ggacaccag cggtctcgg gcaagaggtt gggggacacc ttctctca  
421 ccttgagcga ctccgccga gagaacgagg gctactatt ctgctggcc ctgagcaact  
481 ccatcatgta ctacgccac ttctgcccg tctctgcc agcgaagccc accacgacgc  
541 cagcgcgcgc accaccaaca ccggcgccca ccatcgctc gcagcccctg tccctgcgc  
601 cagaggcgtg ccggccagcg gcggggggcg cagggaaccg aagacgtgt tcaaatgtc  
661 cccggcctgt ggtcaaatcg ggagacaagc ccagccttc ggcgagatac gtctaaccct  
721 gtgaacagc cactacatta ctcaaactg agatcctcc tttagagga gcaagtcct  
781 cctttcatt tttccagtc ttctccctg tgtattcatt ctcatgatta ttatttagt  
841 gggggcgggg tgggaaagat tacttttct ttatgtgtt gacgggaaac aaaactaggt  
901 aaaatctaca gtacaccaca agggtcaca tactgttgt cgacatcgc ggtagggcgt  
961 ggaaaggggc aggcagagc taccgcaga gtctcagaa tcatgctgag agagctggag  
1021 gcacccatgc catctcaacc tctccccgc ccgtttaca aagggggagg cttaaagcca  
1081 gagacagct gatcaaaggc acacagcaag tcagggttg agcagtagct ggagggacct  
1141 tgtctccag ctgagggtc ttctccac accattcagg tcttcttc cgaggccct  
1201 gtctcaggt gagggtctg agtctcaac ggcaaggga caagtactc ttgatacctg  
1261 ggatacttg cccagagcct cgaggaggta atgaataaa gaagagaact gccttggca  
1321 gaggttcata atgtaacaa tatcagact ttttttta taatcaagcc taaaattgta  
1381 tagacctaaa ataaaatgaa gtgtgagct taacctgga aatgaatcc ctctatctt  
1441 aaagaaaatc tctgtgaaac ccctatggt aggcggaatt gctctccag cccttgcat  
1501 gcagaggggc ccatgaaaga ggacaggcta ccccttaca aatagaattt gagcatcagt  
1561 gaggttaaac taaggccctc ttgaatctt gaatttgaga tacaacatg ttctgggat  
1621 cactgatgac ttttatact ttgtaaagac aattgtgga gagccctca cacagccctg  
1681 gcctctgctc aactagcaga tacagggatg aggcagacct gactcttta aggaggctga

## FIGURE 1

1741 gagcccaaac tgctgtccca aacatgcact tccttgctta aggtatggta caagcaatgc  
1801 ctgcccattg gagagaaaaa acttaagtag ataaggaaat aagaaccact cataattctt  
1861 caccttagga ataatctcct gttaatatgg tgtacattct tcctgattat ttctacaca  
1921 tacatgtaaa atatgtcttt cttttttaa taggggttga ctatgctgtt atgagtggct  
1981 ttaatgaata aacatttga gcatcctctt taatgggtaa acagcaaaaa aaaaaaaaaa  
2041 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa  
2101 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa

## FIGURE 1

X60223  
Pongo pygmaeus (Orangutan)  
Complete CD8 alpha mRNA

### Predicted polypeptide

MALPVTALLLPLALLLHAARPSQFRVSPLDRTWNLGETVELKCQ  
VLLSNPTSGCSWLFQPRGAAASPTFLLYLSQNKPKAAEGLDTRFSGKRLGDTFVLTL  
SDFRRENEGYYFCSALSNSIMYFSHFVPVFLPVHTRGLDFACDIYWAPLAGTCGVLL  
LSLVITLYCNHRNRRRVCKCPRPVVKSGGKPSLSERYV

### mRNA

1 atggccttac ccgtgaccgc cttgctcctg ccgctggcct tgctgctcca cgccgccagg  
61 ccgagccagt tccgggtgtc gccgctggat cggacctgga acctgggcca gacggtggag  
121 ctgaagtgcc aggtgctgct gtccaacccg acgtctggct gctcctggct cttccagccg  
181 cgtggcgccg ccgccagtcc caccttctc ctatacctct cccaaaacaa gccaaggcg  
241 gccgaggggc tggacacca gcggttctcg ggcaagaggt tgggggacac cttcgtcctc  
301 accctgagcg acttccgccg ggagaacgaa ggctactatt tctgctcggc cctgagcaac  
361 tccatcatgt acttcagcca cttcgtgccg gtcttctgc cagtgcacac gagggggctg  
421 gacttcgcct gtgatatcta catctgggcg cccttgccg ggacctgtgg ggtccttctc  
481 ctgtcactgg ttatcacctt ttactgcaac cacaggaacc gaagacgtgt ttgcaaatgt  
541 ccccggcctg tggtaaatc tggaggcaag ccagccttt cggagagata tgtctaa

## FIGURE 1

XM\_132621 & BC030679 & U34881  
Mus musculus (Mouse)  
Complete CD8 alpha mRNA

### Predicted polypeptide

MASPLTRFLSLNLLLLGESIILGSGEAKPQAPELRIFPKKMDAE  
LGQKVDLVCEVLGVSQGC SWL FQNSSSKLPQPTFVVYMASSH NKITWDEKLNSSKLF  
SAMRDTNNKYVLT LNKFSKENEGYYFCSVISNSVMYFSSV PVLQKVNSTTTKPVLRT  
PSPVHPTGTSQPQRPEDCRPRGSVKGTGLDFACDIYIWAPLAGICVALLLSLIITLIC  
YHRSRKRVCCKPSIACLCLKLQGS KWYESVIC SALAVSIRC NKSKSGELPLAVHLDIR  
APCKNWEIAGSLVERYGKSGKHSPLSLKAVVESN

### mRNA

1 atggcctcac cgttgacccg ctttctgtcg ctgaacctgc tgctgctggg tgagtcgatt  
61 atcctgggga gtggagaagc taagccacag gcacccgaac tccgaatctt tccaaagaaa  
121 atggacgccg aacttggtca gaaggtggac ctggtatgtg aagtgttggg gtccgtttcg  
181 caaggatgct cttggctctt ccagaactcc agctccaaac tccccagacc caccttcgtt  
241 gtctatatgg ctctatccca caacaagata acgtgggacg agaagctgaa ttcgtcgaaa  
301 ctgttttctg ccatgagggg cagcaataat aagtacgttc tcacctgaa caagttcagc  
361 aaggaaaacg aaggctacta ttctgtctca gtcacagca actcgggtgat gtacttcagt  
421 tctgtctgtc cagtccttca gaaagtgaac tctactacta ccaagccagt gctgcgaact  
481 ccctcacctg tgcacctac cgggacatct cagccccaga gaccagaaga ttgtcggccc  
541 cgtggctcag tgaaggggac cggattggac ttgcctgtg atatttacat ctgggcaccc  
601 ttggccggaa tctgcgtggc ccttctgtcg tcttgatca tcacttcat ctgctaccac  
661 aggagccgaa agcgtgttg caaatgtccc agtatagcat gcttgtgcct caaactgcaa  
721 ggaagcaagt ggtatgaatc tgtgatctgc tcagctctgg ctgtgagcat cagatgtaac  
781 aatcaaagt caggagaact gcctttagcg gtgcacctgg acatcagagc cccttgtaag  
841 aactgggaaa ttgctggcag tctagtggag cggtagcgta aatctggaaa acactccct  
901 ctgtactga aggctgtagt agaatccaat taa

### Predicted polypeptide

MDAELGQKVDLVCEVLGVSQGC SWL FQNSSSKLPQPTFVVYMA  
SSH NKITWDEKLNSSKLF SAMRDTNNKYVLT LNKFSKENEGYYFCSVISNSVMYFSSV  
PVLQKVNSTTTKPVLRT PSPVHPTGTSQPQRPEDCRPRGSVKGTGLDFACDIYIWAP  
LAGICVALLLSLIITLIC YHRSRKRVCCKPRPLVRQEGKPRPSEKIV

## FIGURE 1

### mRNA

1 cgttgacccg cttctgtcg ctgaacctgc tgctgctggg tgagtcgatt atcctgggga  
61 gtggagaagc taagccacag gcacccgaac tccgaatctt tccaaagaaa atggacgccg  
121 aacttggtca gaaggaggac ctggtatgtg aagtgttggg gtccgttcg caaggatgct  
181 cttggctctt ccagaactcc agctccaaac tccccagcc caccttcgtt gtctatatgg  
241 cttcatccca caacaagata acgtgggacg agaagctgaa ttgctgaaa ctgtttctg  
301 ccatgaggga cacgaataat aagtacgttc tcacctgaa caagttcagc aaggaaaacg  
361 aaggctacta ttctgtcta gtcatcagca actcgggtgat gtacttcagt tctgtcgtgc  
421 cagtccttca gaaagtgaac tctactacta ccaagccagt gctgcgaact cctcacctg  
481 tgcaccttac cgggacatct cagccccaga gaccagaaga ttgtcggccc cgtggctcag  
541 tgaaggggac cggattggac ttgcctgtg atatttaccat ctgggcaccc ttggccggaa  
601 tctgcgtggc ccttctgtg tcttgatca tcaactcat ctgctaccac aggagccgaa  
661 agcgtgtttg caaatgtccc aggcgcgtag tcagacagga aggcaagccc agaccttcag  
721 agaaaattgt gtaaaatggc accgccagga agctacaact actacatgac ttcagatctc  
781 ttcttgaag aggccaggcc ctctttttc aagtttctg ctgtctatg tattgccctc  
841 tgtattgttt tagtaggggt gtgatgggga cagttccttt ttctttatga attctctttg  
901 acacaaagca tacttgtatg catacaatgg gagtaatgag cagactgtaa caccagagct  
961 agttccagtt tcgggggtcca tgcgctggt ggcctcagca cccactgat ataaatctcc  
1021 tgtctgccc tcatatagaa gaagctgaag atcagagggtg gaaacagcag gatctgtaga  
1081 cccggagaga acccaagcta gaggaacct cactgactgg tgcagggatc tcaccccat  
1141 cccctgagct ctctgttag gtatgtgtct ttatgatagc atgctgtgc ctcaaactgc  
1201 aaggaagcaa gtggtatgaa tctgtgatct gctcagctct ggctgtgagc atcagatgta  
1261 acaaatcaaa gtcaggagaa ctgcctttag cgggtcacct ggacatcaga gcccttgta  
1321 agaactggga aattgctggc agtctagtg agcggtagcg taaatctgga aaacactccc  
1381 ctctgtcact gaaggctgta gtagaatcca attaaagcta ttcaaaccac aaaaaaaaaa  
1441 aaaaaaaaaa aa

### Predicted polypeptide

MASPLTRFLSLNLLMGESIILGSGEAKPQAPELRIFPKKMDAE  
LGQKVDLVCEVLGVSQGC SWLFQNSSSKLPQPTFVVYMASSH NKITWDEKLNSSKLF  
SAVRDTNNKYVLT LNKFSKENEGYYFCSVISNSVMYFSSVVPVLQKVNSTTTK PVLRT  
PSPVHPTGTSQPQR PEDCRPRGSVKGTGLDFACDIYWAPLAGICVAPLLSLIITLIC  
YHRSRKRVCCKPRPLVRQEGKPRPSEKIV

### mRNA



## FIGURE 1

1 atggcctcac cgttgacccg ctttctgtcg ctgaacctgc tgctgatggg tgagtogatt  
61 atcctgggga gtggagaagc taagccacag gcacccgaac tccgaatctt tccaaagaaa  
121 atggacgccg aactggcca gaaggtggac ctggtatgtg aagtgttggg gtccgtttcg  
181 caaggatgct ctggctctt ccagaactcc agctocaaac tccccagcc caccttcgtt  
241 gtctatatgg ctcatocca caacaagata acgtgggacg agaagctgaa ttgtcgaaa  
301 ctgttttctg ccgtgaggga cacgaataat aagtacgttc tcaccctgaa caagtcagc  
361 aaggaaaacg aaggctacta ttctgtctca gtcacagca actcgggtgat gtacttcagt  
421 tctgtctgc cagtcttca gaaagtgaac tctactacta ccaagccagt gctgcgaact  
481 ccctcacctg tgcaccctac cgggacatct cagccccaga gaccagaaga ttgtcgggcc  
541 cgtggctcag tgaaggggac cggattggac ttgcctgtg atatttacct ctgggcaccc  
601 ttggccggaa tctgcgtggc ccctctgctg tccttgatca tcacttctat ctgtaccac  
661 aggagccgaa agcgtgtttg caaatgtccc aggccgctag tcagacagga aggcaagccc  
721 agaccttcag agaaaattgt gtaa

## FIGURE 1

NM\_031538  
Rattus norvegicus (Rat)  
Complete CD8 alpha mRNA

### Predicted polypeptide

MASRVICFLSLNLLLLDVITRLQVSGQLQLSPKKVDAEIGQEVK  
LTCEVLRDTSQGCSWLFRNSSSELLQPTFIIYVSSSRSKLNDILDPNLF SARKENNKY  
ILTLSKFSTKNQGYFCSITSNSVMYFSPLVPVFQVNSIITKPVTRAPTPVPPPTGT  
PRPLRPEACRPGASGSVEGMGLGFACDIYWAPLAGICAVLLLLSLVITLICCHNRNRRR  
VCKCPRPLVKPRPSEKFV

### mRNA

1 ccctagagcc ctactgtgac ctaaggtgct ggtgggacgc acaccatggc ctcacgggtg  
61 atctgcttgc tgcctgtgaa cctgtactg ctggatgta tcactaggct ccaggtttcc  
121 ggacagttac agttgtcacc aaagaaagt gacgctgaaa ttggccagga ggtgaagcta  
181 acatgcgaag tgcctcgga cacttcgcaa ggaatgctct ggctcttcg gaactccagc  
241 tccgaactcc tccagccac ctctcatc tcctgtatct catcccgag caagctgaac  
301 gatatactgg atccgaatct gttctctgcc cggaaggaaa acaacaaata catcctcacc  
361 ctgagcaagt tcagcactaa aaaccaaggc tactatttct gctcaatcac cagcaactcg  
421 gtgatgtact tcagtcctct ggtgccggtg ttcagaaaag tgaactctat taccaccaag  
481 ccggtgacgc gagctccac accagtgcct cctctacag ggacaccccg gccctacga  
541 ccagaagctt gccgaccgg gccgagtgcc tcagtggagg gaatgggatt gggcttcgcc  
601 tgcgatattt acatctgggc accctggcc ggaatctgcg cggttctct gctgtccctg  
661 gtcacactc tcactgtctg ccacaggaa cgaaggcgtg ttgcaaatg tccaggccc  
721 cttgtcaagc ccagacctc agagaaattc gtgtaaaatg gcgccactag gaagccacaa  
781 ctactacatg acttcagaga ttctcaca gagaccgggc cctcctttt cagagtttc  
841 tgcctgctta tatattgtcc tctgtattgt tttaggggta ggaatgggac agttccttt  
901 tctttatgaa ttctcttga taaaaacat actgtatgc acacaatggg gtaaagatca  
961 gactgaaca ccagagatag tccagttc aggtcagcg tagctggtg

## FIGURE 1

AY303773

*Cavia porcellus* (Guinea Pig)

Complete CD8 alpha mRNA

### Predicted polypeptide

MAPRGSAWLLLLPVALLLDAATAQGASQFRMSPRELVAQVGTKV  
TLRCEVLVPNAPAGCSWLFQPRHDAKGPTFLLYHSASGTKLAPGLEQKRFSPSKSSNT  
YTLTVNSFQKRDEGYFCSVSGNMMLYFSPFVPVFLPAPRTTTPPPPTTPTPSVQPT  
SVRPETCVVSKGAAGARWLDLSCDVYIWAPLASTCAALLLALVITIICHRNRQRVCK  
CPRPQARSGGKPSPSGKLV

### mRNA

1 gcaacttccc cactgcgcat cccctggctc ctggtggctc ctggcgggct cccttcacgc  
61 ctggactcca ggctctgccc tgcgccgagg agcgcgcgcc atggccccgc gaggaagcgc  
121 ctggctgctg ctgctgccgg tggccctgct gctcgacgcc gccacggccc aaggtgccag  
181 tcagttcoga atgtcacccc gtgaactggt cgcgcaagtc ggcaccaaag tgaccctgcg  
241 ctgtgagggt ctggtgccta acgcgcgggc gggatgctcg tggctcttc agccccgcca  
301 cgacgcaaaa ggtcccacct tcctcctgta ccattcggcg tccgggacca agttggcccc  
361 agggctggaa cagaagcgat tcagcccctc gaagagcagt aacacctaca cctcacgggt  
421 gaacagcttc cagaagcgag acgaaggcta ctactctgc tcggtctccg gcaacatgat  
481 gctctacttc agcccgttcg ttcccgcttt cctgccagct cctcgacca cgacgcccc  
541 tccccctccc accacgcca cccccagcgt gcagcccacg tcggtgcgcc ccgagacgtg  
601 tgtggtctct aaggcgcgag cagggtgcgag gtggctggat ctctcctgtg atgtctacat  
661 ctggcgcccc ctggccagca catgcgcggc ccttctgctg gcactggtca tcacgatcat  
721 ctgccaccgc aggaacagac aacgcgtttg caaatgtcct agggcccaag ccaggctcgg  
781 aggcaaaacc agcccttcag ggaagttagt ctaacaacat ggcgcccagc ctgtgcgaag  
841 ccactacatg actttatact gagatcattc ctggacagc aagtgtcct ctttgggtt  
901 tccagtcctt ccttcctatg tattgttct cattactatt ttagtgggca tggggtggga  
961 agagttgctt ttctgttaga caaaaaataa aaccatgtag catctgcagc tcacaagggt  
1021 cacagggctg ttacctcaca caggggttag ggtagcaagc agggctctca ggtactggaa  
1081 ttactccct tccactcact tgagggtggg cagcaccac gggcatfta tcctcatca  
1141 tgctcctcca ccacttgag ctcatatgcc acccaaagag cagtctatct aaaccaggc  
1201 caaacacatg caactgcttt ttgaaccga gagcctaatt tatctcaga gaatgcaagt  
1261 gtcctttgt cacttatac ttgtccatga ccttaataa atgtgctgt ttccctcaa  
1321 aaaaaaaaaa

## FIGURE 1

NM\_174015  
Bos taurus (Cow)  
Complete CD8 alpha mRNA

### Predicted polypeptide

MASLLTALILPLALLLLDAAKVLGSLSFMSPTQKETRLGEKVE  
LQCELLQSGMATGCSWLRHIPGDDPRPTFLMYLSAQRVKLAEGLDPRHISGAKVSGTK  
FQLTLSSFLQEDQGYFCSVVSNSILYFSNFVPVFLPAKPATTPAMRPSSAAPTSAPO  
TRSVSPRSEVCRTSAGSAVDTSRLDFACNIYIWAPLVGTCGVLLLSLVITGICYRRNR  
RRVCKCPRPVVRQGGKPNLSEKYV

### mRNA

1 gaattcggat ccacatggc ctactcttg accgccctga tctgccgtt gccctgctg  
61 ctgctgatg ccgccaaggt cctcgggtcg ctctgttcc ggatgtgcc gacgcagaag  
121 gagaccagac tgggcgagaa ggtggagctg caatgcgagt tgctgcagtc cggcatggcg  
181 acaggggtct cctggctccg ccacataccc ggggacgacc ccagaccac ctctctaag  
241 tacctctccg cccaacgggt caagctagcc gagggactgg accccagaca catttcggc  
301 gccaaaggct ccggcaccaa attccagctc accctgagca gcttctcca ggaggacaa  
361 ggctactatt ttgctcggg cgtgagcaac tcgatactgt acttcagtaa ctctgtgct  
421 gtctcttgc cagcgaagcc ggccaccacg ccggcgatgc ggccatccag cgcggcgccc  
481 accagcgcgc cgcagactag gtccgtctct ccgcgatcag aggtgtgccg gacctcggcg  
541 ggcagcgcag tggacacgag ccggctggac ttcgcctgca atatctacat ctgggtccc  
601 ttggtcggga cctgcggcgt ccttctctg tcattggta tcacaggcat ctgctaccg  
661 cggaaccgaa gacgtgtctg caaatgtccc aggcctgtgg tccgacaagg aggcaagccc  
721 aaccttcag agaaatatgt ctaacatgc gatgggcccc gtgtgacagc cactacaaga  
781 ctgcgactg agaactctcc tgagatcct ccttttgat ttctccctgc ttcttctct  
841 ctgcttatta ttattttca tgggggtggg gtgggaagag ttacttttc ttattattt  
901 actttgatac aaaacaagac actcgtgtct aaggcatacc acaagggtta tcatgtgtt  
961 gtgctcccat actcgggtag agggcgggcg ggccagagct accgcaagct ctattctcag  
1021 aacctggctg tgagaactgg tgggggcctc ggcacccact cagccccaac ttctctcca  
1081 cccattttac aaaagaggac gctgaggccc agagatgggg aacagctgga tcagagtccc  
1141 agcagggtc cacacaactg agatctttct tctggaggcc tctgtctcag cgtggggagc  
1201 tggatctcaa gcctcagaga actagttatt tctgaagcat ctgtgataga cccatgactg  
1261 caccagagc ctgatgagg taatgaaata ggacaagaaa actgacaga gttctgtgat  
1321 actgctgaac aggatcagat tattttttt ataataagc atgaaatgat acagataata  
1381 ggaattctc caatgaagtg gaaggagtga actgaatgat ggaaatgag caacctgacc  
1441 tctgaagaaa atctctggga aatcccagcc tggagatgtt tctccagcc ctgtattgc

## FIGURE 1

1501 agaaggaccc tcaaagagga gaggccaccc tctgaagca tgatttgagc gtaggaaag  
1561 ttgaatggag ttcaagtctc tctaaacatt gagattccgt attcaaacaat gctcctgggt  
1621 tatcgggtgag tttttatagt ttgtaaaggg agaattgtga ccgagcagct ggcacaggcc  
1681 ctggcacccc aggctagcag ctgaggggaat gtgcagacac tggtagggag gctacgagcc  
1741 cagctgcagc cctacaaggc atttccttcc ttactgtgtt ctgcaaaaaa tgcattgctca  
1801 ctgggagaaa aaatgtagct aaggtagtaa gaatcatccg taattcttta cctcagggat  
1861 aatccattgt taatattatg ggctacattc ttctgatta tttctgtgc cctacatata  
1921 aaatatataa ttttaaaaaa tgggattgca ctatgctttt ataaatggct ttaataaaca  
1981 aacatttatg gcttacttct t

## FIGURE 1

AY517855  
Sus scrofa (Domestic pig)  
Complete CD8 alpha mRNA

### Predicted polypeptide

VELQCELMHSNTLTSCSWLYQKPGAASKPIFLMYLSKTRNKTAE  
GLDTRYISGYKANDNFYLILHRFREEDQGYFCSFLSNSVLYFSNFMVFLPAKPTKT  
PTTPPKRTPTKASHAVSVAPEVCRPSGNADPRKLDLACDLYNWAPLVGTSGILLLSL  
VITIICHRNRNRRRVCKCPRPVVRQGGKASPSERFI

### mRNA

1 gtggagctgc agtgcgagtt gatgcactcc aacacactga caagctgttc ctggctctac  
61 cagaagccgg gggctgcctc caagcccatc ttctcatgt acctctcaa aaccgggaat  
121 aagacagccg aggggctgga caccggttac atctctggtt acaaggccaa tgacaacttc  
181 tacctcatcc tgcaccgctt ccgcgaggag gaccaaggct actattctg ctggttctg  
241 agcaactcgg tttgtattt cagcaacttc atgtccgtct tctgccagc aaagcccacc  
301 aagacgccga ctacgccacc acccaagcgg actcccacca aagcgtcgca cgccgtgtct  
361 gtggccccag aggtgtgccg gccttcgggc aagcagacc cgaggaagct ggacctcgcc  
421 tgtatctgt acaactgggc gccctgggtt gggacctccg gcatccttct cctgtcactg  
481 gtcatcacca tcatctgcca ccgccgaac agaagacgtg ttgcaaagt tcccaggccc  
541 gtgtcagac agggaggcaa ggccagccct tcagagagat tcatctaaca tggcgacatg  
601 cccacgcag cagccactac aagacctcaa actgagacct ctccgggcag gagagcaagg  
661 gtctttctt ttccgttcc ccagcctcc ttcttcctt aagtattctt ctattatta  
721 ttatttccat ggggggtggg tgggaagggt gacttttct ttgggtgtt actttaattg  
781 acacaaaacg agactctatc acgtcttgg tacgccgag ggggtcgaac accgttgtc  
841 tcacacacac aacggtgaag ggtggcggg ccagagctac cgcaagctgt gttctcagaa  
901 ccaggctgtg agagctggtg ggggggtggg aggccctcg caccacaca ggccaaacct  
961 ctccccctgc cccccattt acaaaggaat gaggctgagg ccagagatg ggggggtggt  
1021 ggatcagagc ccagcaagg ctccaggctc atctccaca gcatttgggc ctctctcca  
1081 ggggcctctg tctcagctgg gggagctgtg tctccacct caaggaaaca aggtttgctt  
1141 gggcacctgt gatagactct gactgtgcc cagagccccg gggaggcaat gcagtaagtc  
1201 aaggggacgt gacagaggtc tacggtgcag ttgaacagga tcagatatat ttttttaat  
1261 aatccagcat gaagtatat agataacagg aattcctcaa atagagtga agggctgaac  
1321 tgaatcctgg aaagtgaaca acacgacctc taaaggaaat ccaatgcaa aaatctctaa  
1381 gtggagacac agtggctctc ccaggggacc catgaaagag ggaagccgc cctttgcaa  
1441 tatgattga gcatcgcaa agtcgaacgg aggtcgccc tctctaaat tgagatctga  
1501 tatttgaacg tgctcctcg atcattgatg ggttttttg gttgttaac acagaattat  
1561 gaccgagtag ctggcctccc ctggaccagc agctgtggat atggggcaga ctctgatgag

## FIGURE 1

1621 gaggttagga gccagactg ctgccctcta cgcgcatttc ctctcttaac catgttgtac  
1681 aagaaatgcg tgctcgctgg aagaaaaaac taaataataa gagtcacca taattcttta  
1741 ctctgggtat aactcattgt taatattatg gtgtacattc ttctgatta tttctatgc  
1801 acgtatataa aatgtatact ttttaaaaat ggaattgtac tatgcttta gaagtggttt  
1861 taataaacat ttctgctatg aaaaaaaaaa a

## FIGURE 1

D16536  
Felis catus (cat)  
Complete CD8 alpha mRNA  
Predicted polypeptide

MASPVTAQLLPLALLHAAAAAGPSPFRLSPVRVEGRLGQRVEL  
QCEVLLSSAAPGCTWLFQKNEPAARPIFLAYLSRSRTKLAEEELDPKQISGQRIQDTLY  
SLTLHRFRKEEEGYFFCSVVSNSVLYFSAFVPVFLPVKPTTTPAPRPPTQAPITTSQR  
VSLRPGTCQPSAGSTVEASGLDLSCDIYWAPLAGTCAFLLSLVITVICNHRNRRRV  
CKCPRPVVRAGGKPSPSERYV

### mRNA

1 atggcctctc cggtgactgc ccagctcctg ccgctggcct tgctgcttca tgccgccgca  
61 gccgccgggc cgagcccggt ccgcttatcg cccgtgaggg tggagggcag gctcggccag  
121 cgggtggagc tgcagtgcga ggtgctgctg tccagcgcg cgccgggctg cacctggctc  
181 ttccagaaga acgaacctgc cgcccgcccc atcttcttg cgtacctcic cagaagccgg  
241 accaagttgg ccgaggagct ggaccccaaa cagatctcgg gccagaggat tcaggacacc  
301 ctctacagtc tcacctgca cagattccgc aaggaggaag aaggctacta tttctgctcg  
361 gtctgtagca actccgttct gtacttcagc gccttcgtcc cggttctct gccagtcaag  
421 ccaccacta cgcccgcgcc gcgaccgccc acgcaggcgc ccatcaccac gtcgcagcgg  
481 gtgtctctgc gcccggggac ctgccagcct tcagcgggca gcacagtgga agcaagtggg  
541 ctggatttgt cctgtgacat ctacatctgg gcacccctgg ctgggacctg cgccttctt  
601 ctctgtcgc tggatcacac cgtcatctgc aaccacagga accgaagacg tgtttgcaaa  
661 tgtccgaggc ccgtggtcag agcaggaggc aagcctagcc cgtcagagag atacgtctaa  
721 catggagatg ggcccatgc accagccact acaagaccaa ataaaactct ctttatgagg  
781 acagt



## FIGURE 1

AY065643

*Sigmodon hispidus* (Hispid cotton rat)

Complete CD8 alpha mRNA

Predicted polypeptide

MAPRVTRFLCLTLLLEFIAELGGSKDFEMSPKKVVAHLGKEVRL

TCEVWVSTSQGCSWLFLEHGSGVKPTFLIYLSGSRNERNNKIPSTKLSGKKEDKKYTL

TLNNFAKEDEGYFCSVTSNSVVFYFSPLVSVFLPEKPTTPVPKPPTSVPPTAISRSRLR

PEACRPGAGTSVEKKGWDFDCDIILAPLAGLCGVLLLSLVTTLICCHNRNRKRVCKCP

RPVVRQGGKPSPSGKLV

mRNA

1 ctctgcttg acctaagctg ctggtggaag cactgccatg gccccccggg tgaccgcct  
61 tctgtgcctg accctgctgc tggaatttat cgctgagctc ggaggctcga aagatttcga  
121 aatgtctcct aagaaggctg tcgccacct tggcaaggag gtgaggctaa catgcgaagt  
181 gtgggtgtct acttcgcaag gatgctctg gctcttctg gagcatggct ccggagttaa  
241 acccacttc ctcactatc tctctgggag ccgcaacgaa cggaataaca aaataccttc  
301 aactaagcta tctgggaaga aggaagacaa aaagtacacc ctcaccctga ataatttgc  
361 taaggaagac gaaggctact attctgctc tgcacaagc aactcgggtg tgtacttcag  
421 tcctctctg tcggtcttc tgccagagaa acctaccaca ccagtgccga aaccaccac  
481 atcagtgcc actacggcga tatctcggc cctgcgacca gaagcttgc gacctggagc  
541 cggcacctca gtggagaaga agggatggga ctgcactgt gatataatca tttggcacc  
601 cttagctgga ctctgtggg tcctctctg gtctctggc accacactca tctgctgcca  
661 caggaacaga aaacgagtct gcaaatgtcc caggcccgtg gtcagacaag gaggcaagcc  
721 cagccctca gggaaactcg tgtaagatgg cgccaagaaa ctacaactac tacttcagag  
781 acctctcat ctgagctcc agctctcct ctcaattt tctcacctc ctatatattg  
841 ttcttgtat tatttagtg ggggtaggac agggttggaa ccatttcct tcttatgaa  
901 ttacattga caaaaacaa gaccacataa tgtccacggg ataccataag ggcaggagct  
961 gttgctcgt acatagcatg tgggggaagt acagaacagc tgtctgggtt ctcaggatca  
1021 gtggatgatc agcaccact tgatgatcta aatgcctgt ctgccatta tatagaagag  
1081 gttgaaggc agaaatggg tgggcaggat ctgtcacca ggagagaacc caagctgacg  
1141 aaatctcac tggatggctc agggaactg cctctatc ctgagttct tttattcagg  
1201 cctgtgcctg gtagtgtga ggctgagta

## FIGURE 1

AJ130818  
Saimiri sciureus (Common Squirrel Monkey)  
Complete CD8 alpha mRNA

### Predicted polypeptide

MASPV TALLLPLALLLHAARPSRFRVSPLDRTWNLGDKVELKCE  
VLLSNPSSGCSWLFQKRGAAASPTFLLYISQTKPKVADGLDAQRFSGKKMGDSFILTL  
RDFREEDQGFYFCSALSNSIMYFSPFVPVFLPAKPTTTPAPRPPTPEPTTASQPLSLR  
PQACRPPAGGAVDTRGLDFACDIYWVPLAGTCGVLLLSLVITVYCNHRNRRRVCKCP  
RPAVKSGGKPSPSERYV

### mRNA

1 atggcctctc ccgtgaccgc ctgtctctg ccgctggccc tgctgtcca cgctgccagg  
61 ccgagccggt tccgggtgic gccgctggat cggacctgga acttgggcga caaggtggag  
121 ctgaagtgcg aggtgctgct gtccaaccgc tctcgggct gctcgtggct ctccagaag  
181 cgcggcgctg ccgccagccc cacttctc ctgtacatct cccaaaccaa gcccaagggtg  
241 gccgatgggc tggacgccc gcgcttctcc ggcaagaaga tgggggacag ctctattctc  
301 accctgcgcg acttccgcga ggaggaccag ggcttctatt tctgctcggc cctgagcaac  
361 tccatcatgt acttcagccc ctctgtccg gtcttctgc cagcgaagcc caccacgacg  
421 ccagcgccgc gaccaccac accggagccc accaccgct cgcagcccct gtccctgctg  
481 ccacaggctt gccggcccc gccggggggc gcagtggaca cgagggggct ggacttgcg  
541 tgtgatatct acatctgggt gcccttgcc gggacctgc gggctcttct cctgtcactg  
601 gtcatcaccg ttattgcaa tcacaggaac cgacgacgtg ttgcaaag tccccgcct  
661 gcggtcaagt ctggaggcaa gccagccct tcggagagat acgtctaa

## Domains of the CD8 $\alpha$ -Chains

Leader

Transmembrane

Human CD8  $\alpha$ -Chain

Protein:

MALPVTALLL	PLALLLHAAR	PSQFRVSPLD	RTWNLGETVE	LKCQVLLSNP
TSGCSWLFQP	RGAAASPTFL	LYLSQNKPKA	AEGLDTQRFS	GKRLGDTFVL
TLSDFRRENE	GYFCSALSN	SIMYFSHFVP	VFLPAKPTTT	PAPRPPTPAP
TIASQPLSLR	PEACRPAAGG	AVHTRGLDFA	<u>CDIYIWAPLA</u>	<u>GTCGVLLLSL</u>
<u>VITLYCNHRN</u>	RRRVCKCPRP	VVKSGDKPSL	SARYV	

mRNA - coding

atggccttac	cagtgaccgc	cttgctcctg	ccgctggcct	tgetgctcca
cgccgccagg	ccgagccagt	tccgggtgtc	gccgctggat	cggacctgga
acctgggcga	gacagtggag	ctgaagtgcc	aggtgctgct	gtccaacccg
acgtcgggct	gctcgtggct	cttcagccg	cgcggcgccg	ccgccagtcc
caccttcctc	ctatacctct	cccaaaacaa	gccaaggcg	gdcgaggggc
tggacacca	gcggttctcg	ggcaagaggt	tgggggacac	cttcgtcctc
accctgagcg	acttcgcgcg	agagaacgag	ggctactatt	tctgctcggc
cctgagcaac	tccatcatgt	acttcagcca	cttcgtgccg	gtcttcctgc
cagcgaagcc	caccacgacg	ccagcgccgc	gaccaccaac	accggcgccc
accatcgcgt	cgcagcccct	gtccctgcgc	ccagaggcgt	gccggccagc
ggcggggggc	gcagtgcaca	cgagggggct	ggacttcgcc	tgtgatatct
<u>acatctgggc</u>	<u>gcccttggcc</u>	<u>gggacttggt</u>	<u>gggtccttct</u>	<u>cctgtcactg</u>
<u>gttatcacc</u>	<u>tttactgcaa</u>	<u>ccacaggaac</u>	<u>cgaagacgtg</u>	<u>tttgcaaagt</u>
tccccggcct	gtggtcaa	cgggagacaa	gccagcctt	tggcgagat
acgtctaa				

Figure 2A

**mouse CD8  $\alpha$ -Chain**

Protein:

<b>MASPLTRFLS</b>	<b>LNLLLLGESI</b>	<b>ILGSGEAKPQ</b>	APELRIFPKK	MDAELGQKVD
LVCEVLGSVS	QGCSWLFQNS	SSKLPQPTFV	VYMASSHNKI	TWDEKLNSSK
LFSAMRDTNN	KYVLTlnKFS	KENEGYYFCS	VISNSVMYFS	SVVPVLQKVN
STTTKPVLRT	PSPVHPTGTS	QPQRPEDCRP	RGSVKGTGLD	FACDIYIWAP
<u>LAGICVALLL</u>	<u>SLIITLICyh</u>	<u>RSRKRVCkCP</u>	SIACLCLKLQ	GSKWYESVIC
SALAVSIRCn	KKSGELPLA	VHLDIRAPCK	NWEIAGSLVE	RYGKSGKHSP
LSLKAVVESN				

mRNA - Coding

<b>atggcctcac</b>	<b>cgttgacccg</b>	<b>ctttctgtcg</b>	<b>ctgaacctgc</b>	<b>tgctgctggg</b>
<b>tgagtcgatt</b>	<b>atcctgggga</b>	<b>gtggagaagc</b>	taagccacag	gcacccgaac
tccgaatcct	tccaaagaaa	atggacgccg	aacttggtca	gaaggtggac
ctggtatgtg	aagtgttggg	gtccgtttcg	caaggatgct	cttggtcctt
ccagaactcc	agctccaaac	tccccagacc	caccttcgtt	gtctatatgg
cttcatccca	caacaagata	acgtgggacg	agaagctgaa	ttcgtcgaaa
ctgttttctg	ccatgagggg	cacgaataat	aagtacgttc	tcaccctgaa
caagttcagc	aaggaaaacg	aaggctacta	tttctgctca	gtcatcagca
actcggatgat	gtacttcagt	tctgtcgtgc	cagtccttca	gaaagtgaac
tctactacta	ccaagccagt	gctgcgaact	ccctcacctg	tgcaccctac
cgggacatct	cagccccaga	gaccagaaga	ttgtcggccc	cgtggctcag
tgaaggggac	cggattggac	ttcgccctgtg	<u>atatttacat</u>	<u>ctgggcaccc</u>
<u>ttggccggaa</u>	<u>tctgcgtggc</u>	<u>ccttctgctg</u>	<u>tccttgatca</u>	<u>tcactctcat</u>
<u>ctgctaccac</u>	<u>aggagccgaa</u>	agcgtgtttg	caaatgtccc	agtatagcat
gcttgtgcct	caaactgcaa	ggaagcaagt	ggtatgaatc	tgtgatctgc
tcagctctgg	ctgtgagcat	cagatgtaac	aaatcaaagt	caggagaact
gccttttagcg	gtgcacctgg	acatcagagc	cccttgtaag	aactgggaaa
ttgctggcag	tctagtggag	cggtaaggta	aatctggaaa	acactcccct
ctgtcactga	aggctgtagt	agaatccaat	taa	

**Figure 2B**

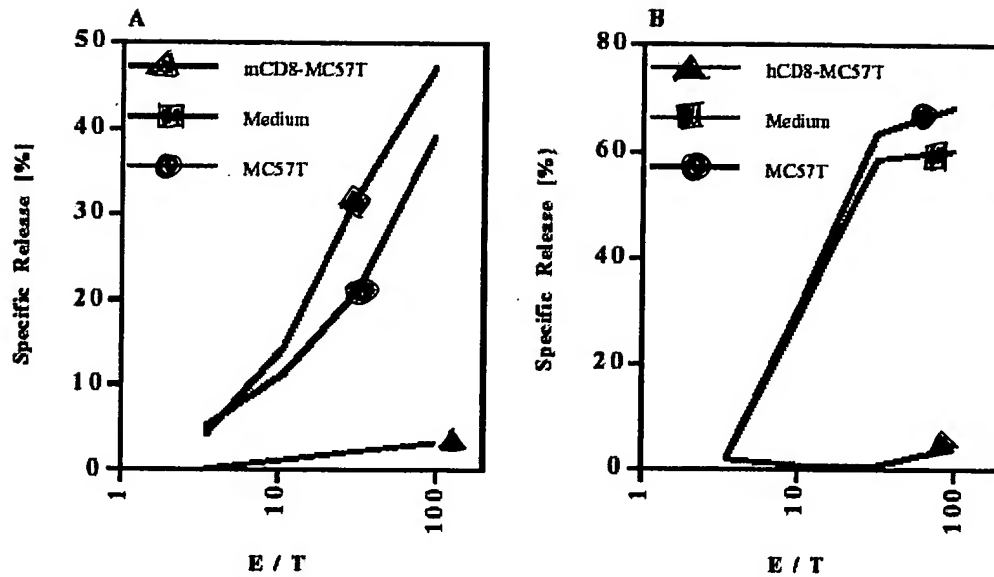
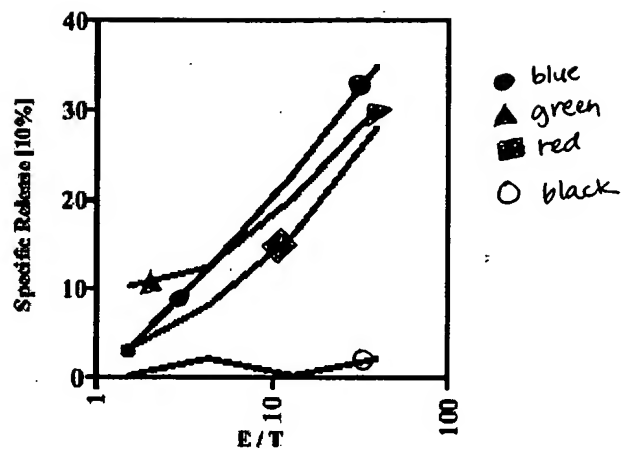


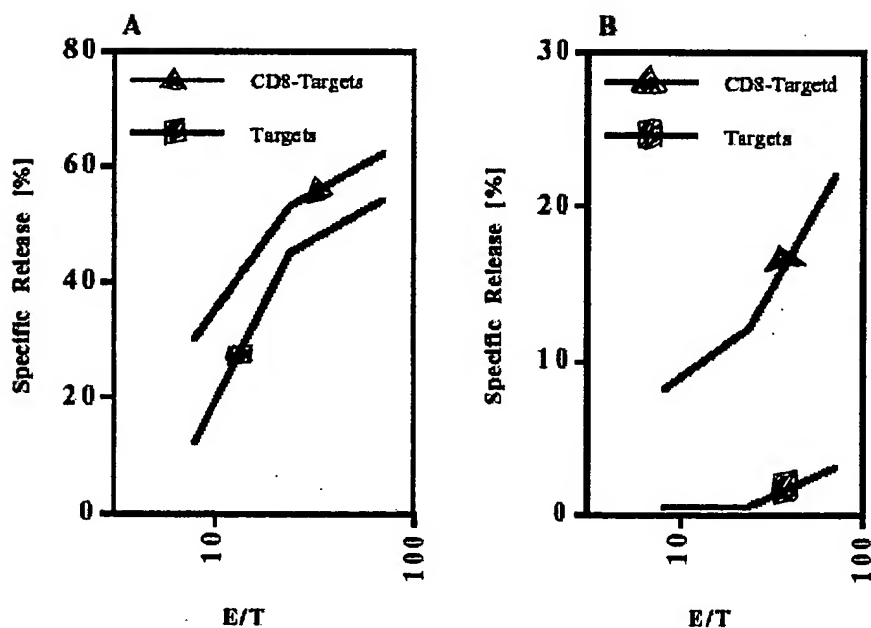
Figure 3: Balb/c spleen cells were stimulated with C57BL/6 spleen cells. Cultures were supplemented with normal fibroblasts (blue), medium (red) or fibroblasts with CD8 (green) of mouse (A) or human (B) origin. Cultures were harvested and tested for their lytic ability towards C57BL/6-derived target cells.

Figure 3



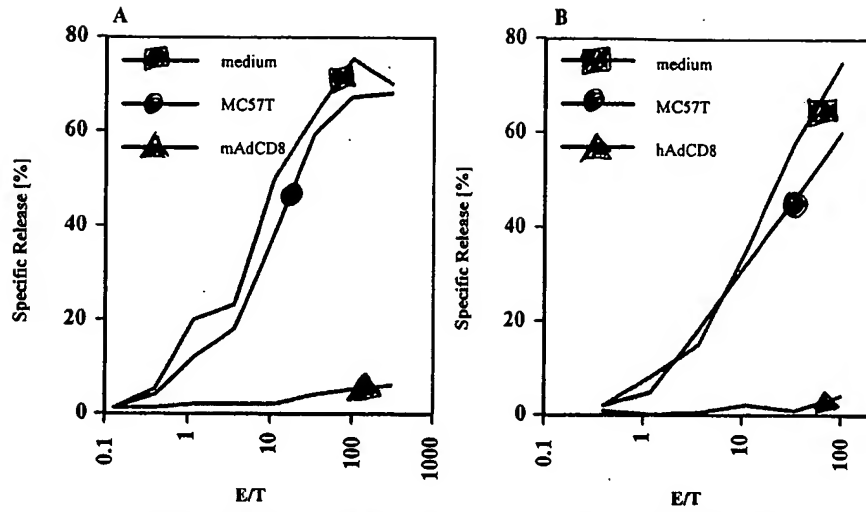
Balb/c (H-2d) mice were injected with control fibroblasts (red and green) or mCD8-transfected C57BL/6- (H-2b) derived (black and blue) fibroblasts. After two weeks animals were sacrificed, spleen cells were harvested, stimulated with C57BL/6 (H-2b) (red and black) or CBA/J (H-2k) (blue and green) spleen cells and tested for their lytic ability on EL4 (H-2b) (red and black) or S.AKR (H-2k) (blue and green) target cells.

Figure 4



Target cells (green) or CD8-expressing targets (red) were tested for their susceptibility to lysis by alloreactive T cells (A) or by antigen-specific CTLs (B).

Figure 5



circle MLCs (Balb/c anti-C57BL/6) were set up in the presence of normal fibroblasts (blue) and fibroblasts transduced with mAdCD8 (A, green) or hAdCD8 (B, green). No fibroblasts were added to control cultures (red). The lytic activity of these cultures towards an C57BL/6-derived target was determined at the end of the culture period. triangle

**Figure 6**

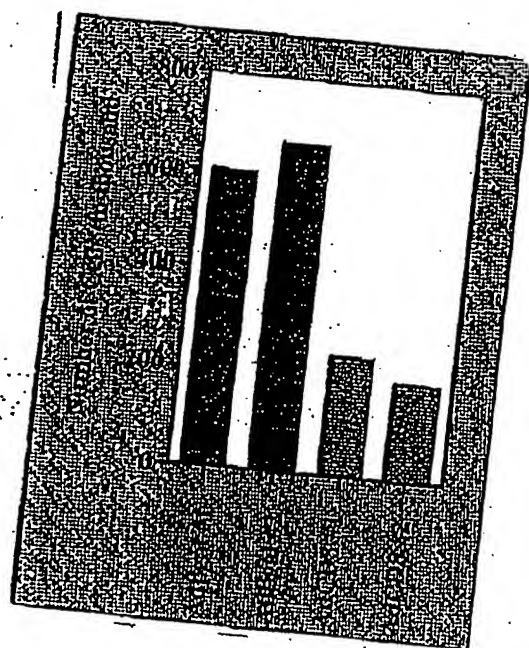


FIGURE 7



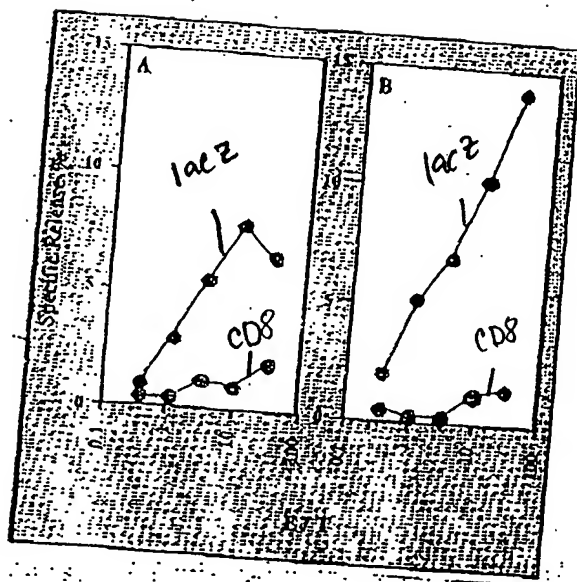
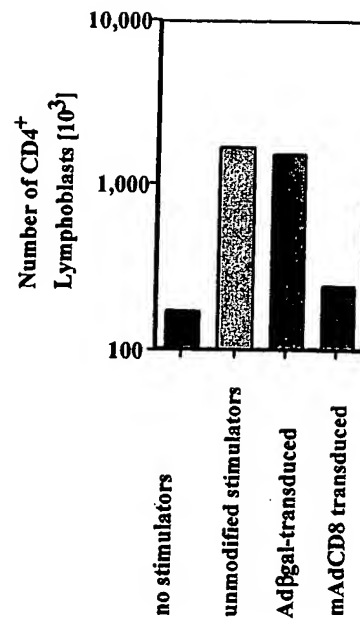


FIGURE 8

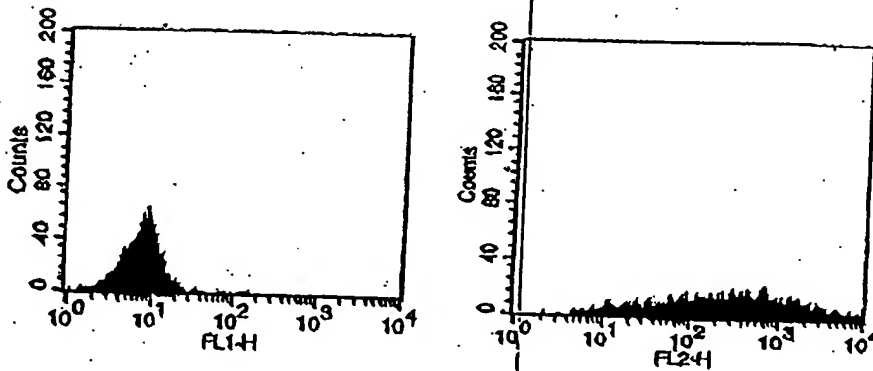


$3 \times 10^6$  C7Bl/6 spleen cells were incubated with  $1 \times 10^6$  (or no) stimulator cells, transduced as indicated. After 4 days the cultures were analyzed for presence CD4<sup>+</sup> T lymphoblasts by immunofluorescence.

**Figure 9**

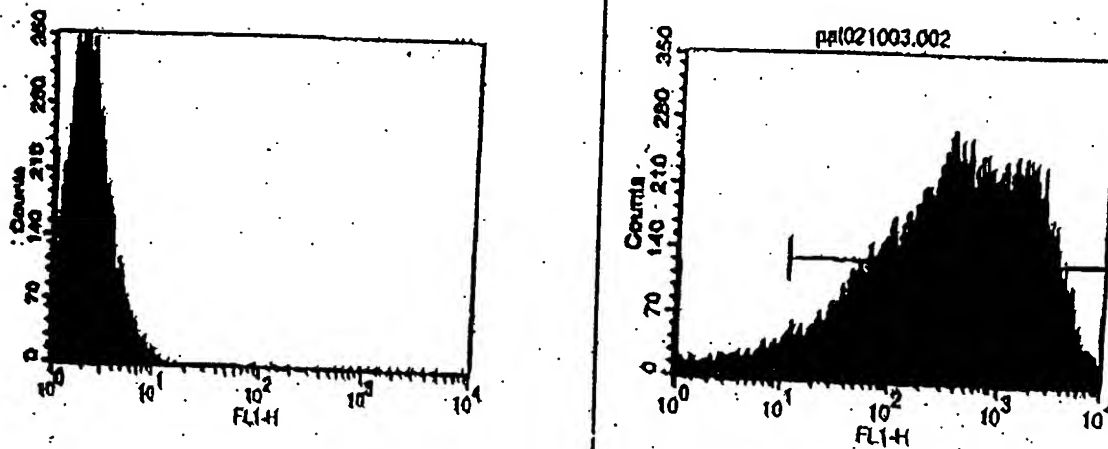
**FIGURE 10A**

Infected Cells: MC57T Fibroblasts  
Panel 1: Mock-Infection; Panel 2: Infection with hAdCD8



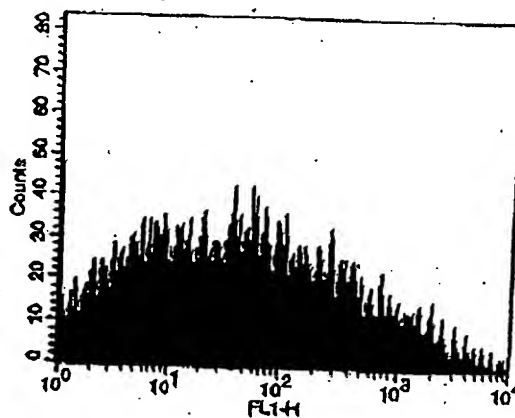
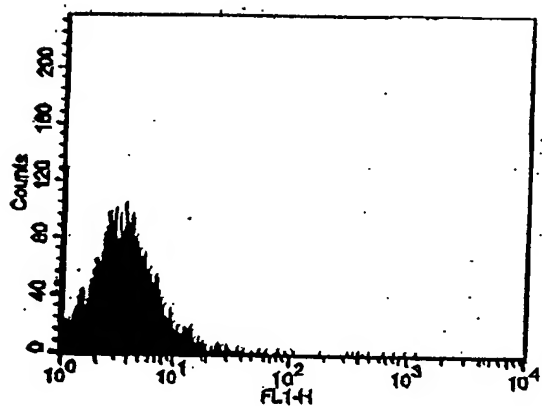
**FIGURE 10B**

Infected Cells: MC57T Fibroblasts  
Panel 1: Mock-Infection; Panel 2: Infection with mAdCD8



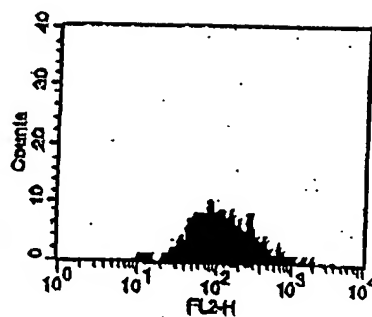
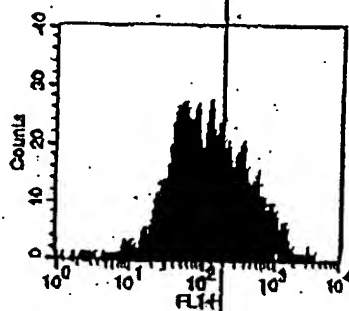
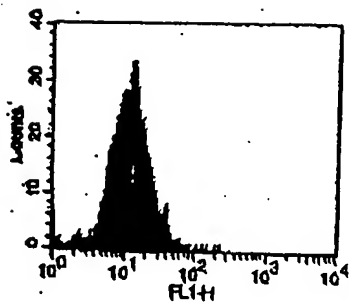
**FIGURE 10C**

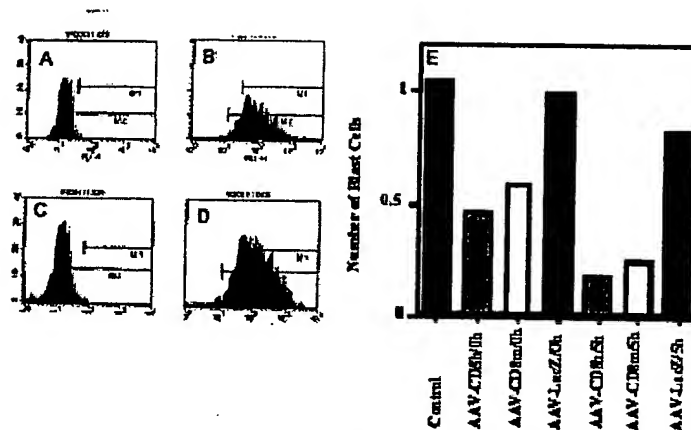
Infected Cells: Balb/c unselected bone marrow cells;  
Panel 1: Infection with lacZ/Adenoviral Vector (AdLacZ);  
Panel 2: Infection with mAdCD8



**FIGURE 10D**

Infected Cells: MC57T Fibroblasts  
Panel 1: Mock-Infection;  
Panel 2: Infection with pAAV-mCD8;  
Panel 3: Infection with pAAV-hCD8





Fibroblasts were transduced with mAAVCD8 (B) or hAAVCD8 (D) or mock-infected (A and C). Surface expression of CD8 was detected by surface immunofluorescence (A through D). MLCs (Balb/c anti-C57BL/6) were set up in the presence of these fibroblasts that had been cultured for 0 or 5 hours after transduction before they were added to the MLCs. At end of cultures, the number of lymphoblasts was determined on a fluorescence activated cell analyzer.

**Figure 11**

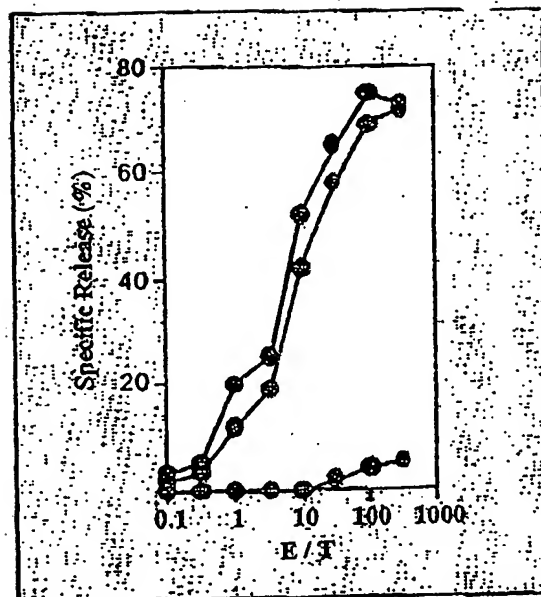
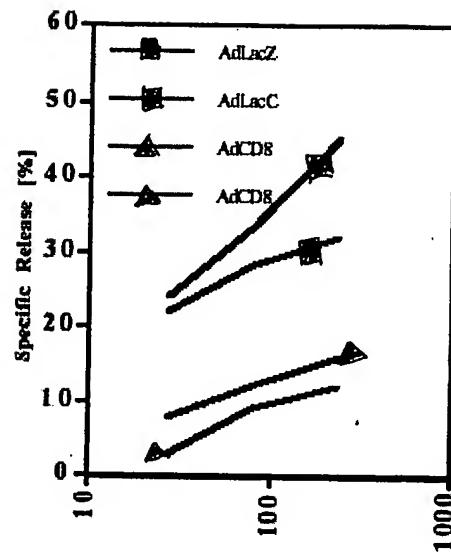
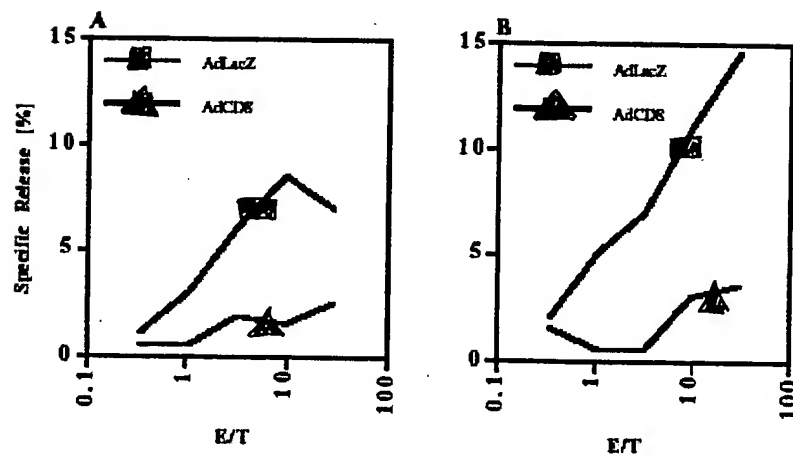


FIGURE 12



triangle Balb/c mice were immunized with AdLacZ (green) or mAdCD8 (red). Their spleen cells were cultured in the presence of AdLacZ and tested for specific lytic activity against AdLacZ-infected syngeneic P815 target cells.

Figure 13



(A) C57BL/6 animals were immunized with AdLacZ (red) or mAdCD8 (green). Their lytic activity of their spleen cells towards syngeneic AdLacZ EL4 target cells was tested. (B) Such animals were re-immunized with AdLacZ prior to testing their lytic activity against AdLacZ-infected EL4 targets.

Figure 14A-B

## Figure 15

### Hemoglobin $\beta$

#### mRNA

1 acatttgctt ctgacacaac tgtgttcaat agcaacctca aacagacacc atggtgcatc  
61 tgactcctga ggagaagtct gccgttactg cctgtgggg caaggagaac gtggatgaag  
121 ttggtggtga ggccctgggc aggtgtctgg tggctaccc ttggaccag aggttcttg  
181 agtccttgg ggatctgtcc actcctgatg ctgttatggg caaccctaag gtgaaggctc  
241 atggcaagaa agtgcctggg gccttagtg atggcctggc tcacctggac aacctcaagg  
301 gcaccttgc cacactgagt gagctgcact gtgacaagct gcacgtggat cctgagaact  
361 tcaggctcct gggcaacgtg ctggctctgt tgctggcca tcacttggc aaagaattca  
421 cccaccagt gcaggctgcc taccagaaag tgggtgctgg tgggctaata gccctggccc  
481 acaagtatca ctaagctgc tttctgtg tccaattct attaaagggt ccttgttcc  
541 ctaagtccaa ctactaaact ggggatatt atgaagggcc ttgagcatct ggattctgcc  
601 taataaaaaa cattatatt cattgc



**Figure 16**  
**GATA-binding protein**

mRNA

1 gcaaaggcca aggccagcca ggacaccccc tggatcaca ctgagctgc cacatcccca  
61 aggcggccga accctccgca accaccagcc caggtaaac ccagaggct ccatggagtt  
121 ccttgccctg gggccctgg ggacdcaga gccctcccc cagtttggtg atctgctct  
181 ggtgtctcc acaccagaat caggggtttt ctccctctt gggcctgagg gcttgatgc  
241 agcagcttcc tccactgcc cgagcacagc caccgtgca gctgcggcac tggccta  
301 cagggaagct gaggcctaca gacatcccc agtcttcag gtgtacccat tgcatactg  
361 tatggagggg atccagggg gctcaccata tgccgctgg gcctacggca agacggggct  
421 ctacctgcc tcaactgtgt gtccacccc cgaggactct cctcccagg cgtggaaga  
481 tctgatgga aaaggcagca ccagcttct ggagacttg aagacagagc ggtgagccc  
541 agacctcctg accctgggac ctgcactgcc ttcatcactc cctgtcccca atagtctta  
601 tgggggccc gactttcca gtacctct tctcccacc gggagcccc tcaattcagc  
661 agcctattcc tctccaagc ttgtggaac tctccccctg cctccctgtg aggccaggga  
721 gtgtgtgaa tgccgagcaa cagccactcc actgtggcgg agggacagga caggccacta  
781 cctatgaac gcctgcggcc tctatcaca gatgaatggg cagaacaggc cctcatccg  
841 gcccaagaag cgctgattg tcagtaaagc ggcaggtact cagtgcacca actgccagac  
901 gaccaccagc acactgtggc ggagaaatgc cagtggggat cccgtgtgca atgcctgcgg  
961 cctctactac aagctacacc aggtgaaccg gccactgacc atgcggaagg atggtattca  
1021 gactcgaac cgcaaggcat ctggaagg gaaaaagaaa cggggctcca gctgggagg  
1081 cacaggagca gccgaaggac cagctgggtg cttaagtgt gtgctgggg gcagcggtag  
1141 cggaatgtg ggggagggtg cticaggcct gacactgggc ccccaggta ctgccatct  
1201 ctaccaaggc ctgggccctg tgggtctgtc agggcctgtt agccacctca tgcctttccc  
1261 tggaccocct ctgggtctac ccacgggctc ctcccaca ggcccatgc cccccaccac  
1321 cagcactact gtgtggctc cgtcagctc atgaggcac agagcatggc ctccagagga  
1381 ggggtgtgt ccttctctc ttgtagccag aattctggac aaccaagtc tctggcccc  
1441 aggcaccccc tggctgaac ctcaaaagt ttgtaaaat aaaaccacca aagtctgaa  
1501 aaaaaaaaa aaaaaaaaa aa

## FIGURE 17

### d-aminoevulinate synthase

#### mRNA

1 cacctgtcat tcgttcgtcc tcagtgcagg gcaacaggac ttaggttca agatggtgac  
61 tgcagccatg ctgctacagt gctgccagtg gctgtcccgg ggccccacaa gcctcctagg  
121 caaggtggtt aagactcacc agttcctgtt tggatttga cgctgtccca tcttggttac  
181 ccaaggacca aactgttctc aaatccacct taaggcaaca aaggctggag gagattctcc  
241 atcttgggcg aagggccact gtcccttcat gctgtcggaa ctccaggatg ggaagagcaa  
301 gattgtgcag aaggcagccc cagaagtcca ggaagatgtg aaggcttca agacagatct  
361 gcctagctcc ctggtctcag tcagcctaag gaagccattt tccggtcccc aggagcagga  
421 gcagatctct gggaaggta cacacctgat tcagaacaat atgcctggaa actatgtctt  
481 cagttatgac cagttttca gggacaagat catggagaag aaacaggatc acacctaccg  
541 tgtgttaag actgtgaacc gctgggctga tgcataatccc ttgcccac atttcttga  
601 ggcatctgtg gcctcaaagg atgtgtccgt ctggtgtagt aatgattacc tgggcatgag  
661 ccgacacctt caggtcttc aagccacaca ggagaccctg cagcgtcatg gtgctggagc  
721 tgggtggacc cgcaacatct caggcaccag taagtttcat gtggagcttg agcaggagct  
781 ggctgagctg caccagaagg actcagccct gctcttctcc tctgtcttg ttgccaatga  
841 ctctactctc ttacacttgg ccaagatctt gccagggtgc gagatttact cagacgcagg  
901 caaccatgct tccatgatcc aaggtatccg taacagtgga gcagccaagt ttgtcttcag  
961 gcacaatgac cctgaccacc taaagaaact tctagagaag tctaacccta agatacccaa  
1021 aattgtggcc ttgagactg tccactccat ggatgggtgc atctgtcccc tcgaggagtt  
1081 gtgtgatgtg tcccaccagt atggggccct gaccttcgtg gatgaggtcc atgtgtagg  
1141 actgtatggg tcccggggcg ctgggattgg ggagcgtgat ggaattatgc ataagattga  
1201 catcatctct ggaactcttg gcaaggcctt tggctgtgtg ggcggtctaca ttgccagcac  
1261 ccgtgacttg gtggacatgg tgcgtccta tgcgcaggc ttcatctta ccacttctct  
1321 gcccccatg gtgctctctg gagctctaga atctgtcggg ctgctcaagg gagaggaggg  
1381 ccaagccctg aggcgagccc accagcgcaa tgtaagcac atgcgccagc tactcatgga  
1441 caggggcctt cctgtcatcc cctgcccag ccacatcatc cccatccggg tgggcaatgc  
1501 agcactcaac agcaagctct gtgatctct gctctccaag catggcatct atgtgcaggc  
1561 catcaactac ccaactgtcc cccgggggtga agagctcctg cgcttggcac cctccccca

1621 ccacagccct cagatgatgg aagattttgt ggagaagctg ctgctggctt ggactgcggt

1681 ggggctgccc ctccaggatg tgtctgtggc tgcctgcaat ttctgtcgcc gtccgtaca

1741 cttgagctc atgagtgagt gggaacgttc ctactcggg aacatggggc ccagtatgt

1801 caccacctat gcctgagaag ccagctgcct aggattcaca cccacctgc gcttcacttg

1861 ggtccagggc tactcctgtc ttctgcttg ttgtgtgcct ctagctgaat tgagcctaaa

1921 aataaagcac aaaccac

**Figure 18**

**Glucose-6-phosphate-dehydrogenase**

mRNA

1 agggacagcc cagaggaggc gtggccacgc tgccggcgga agtggagccc tccgcgagcg  
61 cgcgaggccg ccggggcagg cggggaaacc ggacagtagg ggcggggccg ggccggcgat  
121 ggggatgcgg gagcactacg cggagctgca cccgtgcccg ccggaattgg ggatgcagag  
181 cagcggcagc gggatggca ggcagccggc gggccggcct ccagcgcagg tgcccagag  
241 gcaggggctg gcctgggatg cgcgcgcacc tgccctcgcc ccgccccgcc cgcacgaggg  
301 gtggtggcgg aggccccgcc cgcacgcct cgctgaggc gggtcgcctc agcccaggcg  
361 cccgccccg cccccgccga ttaaatgggc cggcggggct cagcccccg aaacggctgt  
421 aactcgggg ctgcgagcgc ggagggcgac gacgacgaag cgacagacgc gtcatggcag  
481 agcaggtggc cctgagccgg acccaggtgt gcgggatcct gcgggaagag ctttccagg  
541 gcgatgcctt ccatcagtcg gatacacaca tattcatcat catgggtgca tcgggtgacc  
601 tggccaagaa gaagatctac ccacacatct ggtggctgtt ccgggatggc ctctgcccg  
661 aaaacacctt catcgtgggc tatgcccgtt cccgcctcac agtggctgac atccgaaac  
721 agagttagcc ctcttcaag gccaccccag aggagaagct caagctggag gacttcttg  
781 cccgcaactc ctatgtggct ggccagtacg atgatgcagc ctctaccag cgcctcaaca  
841 gccacatgga tgccctccac ctggggtcac aggccaaacc cctctctac ctggcctgc  
901 cccgaccgt ctacgaggcc gtcaccaaga acattcacga gtctgcatg agccagatag  
961 gctggaaccg catcatcgtg gagaagccct tcgggaggga cctgcagagc tctgaccggc  
1021 tgtcaacca catctctcc ctgtccgtg aggaccagat ctaccgcac gaccactacc  
1081 tgggcaagga gatggtgcag aacctcatgg tgctgagatt tgccaacagg atcttcggc  
1141 ccatctggaa ccgggacaac atcgctgcg ttatctcac ctcaaggag cctttggca  
1201 ctgagggctg cgggggctat ttcgatgaat ttgggatcat ccgggacgtg atgcagaacc  
1261 acctactgca gatgctgtgt ctggtggcca tggaagacc cgctccacc aactcagatg  
1321 acgtccgtga tgagaagtc aaggtgtga aatgcatctc agaggtcag gccacaatg  
1381 tggctcctgg ccagtacgtg gggaaccccg atggagaggg cgaggccacc aaagggtacc  
1441 tggacgaccc cacggtgccc cgggggtcca ccaccgccac tttgcagcc gtcgtcctt  
1501 atgtggagaa tgagaggtgg gatggggtgc cttcatcct gcgtgcggc aaggccctga

1561 acgagcgcaa ggccgagggtg aggctgcagt tccatgatgt ggccggcgac atctccacc  
1621 agcagtgcaa gcgcaacgag ctggtgatcc gcgtgcagcc caacgaggcc gtgtacacca  
1681 agatgatgac caagaagccg ggcatgttct tcaacccoga ggagtcggag ctggacctga  
1741 cctacggcaa cagatacaag aacgtgaagc tcctgacgc ctacgagcg ctcacctgg  
1801 acgtctctg cgggagccag atgcacttcg tgcgcagcga cgagctccgt gaggcctggc  
1861 gtattttcac cccactgctg caccagattg agctggagaa gccaagccc atcccctata  
1921 ttatggcag ccgaggcccc acggaggcag acgagctgat gaagagagtg ggttccagt  
1981 atgagggcac ctacaagtgg gtgaaccccc acaagctctg agccctgggc acccacctcc  
2041 acccccgcca cggccacct cctcccgcc gcccgacccc gagtcgggag gactccggga  
2101 ccattgacct cagctgcaca ttctggccc cgggctctg ccacctggc cggcccctg  
2161 ctgtgtctac taccgagcc cagctacatt cctcagctgc caagcactcg agaccatcct  
2221 ggcccctcca gacctgcct gagccagga gctgagtcac ctctccact cactccagcc  
2281 caacagaagg aaggaggagg gcgcccattc gtctgtcca gagctattg gccactgggt  
2341 ctactcctg agtggggcca ggggggagg gagggacaag ggggaggaaa ggggcgagca  
2401 cccacgtgag agaatctgcc tgtggcctg cccgccagcc tcagtccac ttgacattcc  
2461 ttgtcaccag caacatctcg agccccctg atgtccctg tccaccaac tctgcactcc  
2521 atggccaccc cgtgccaccc gtaggcagcc tctctgtat aagaaaagca gacgcagcag  
2581 ctgggacccc tccaacctc aatgcctgc cattaaatcc gcaaacagcc aaaaaaaaaa  
2641 aaaaaaaaaa

**Figure 19**

**Ornithine carbamoyl transferase**

mRNA

1 gagccccagg actgagatat ttactata ccttctctat catctgcac ccccaaaata  
61 gcttccaggg cacttctatt tgttttgg gaaagactgg caattagagg tagaaaagtg  
121 aaataaatgg aaatagtact actcagggct gtcacatcta catctgtgtt ttgcagtg  
181 caattgcat ttctgagtg agttactct actcacctc acagcagcca gtaccgcagt  
241 gcctgcata tattatatcc tcaatgagta ctgtcaatt gatttgtac atgcgtgtga  
301 cagtataaat atattatgaa aaatgaggag gccaggcaat aaaagagtca ggatttctc  
361 caaaaaaat acacagcggg ggagcttggc ataaagtca aatgctcta caccctgccc  
421 tgcagtatct ctaaccaggg gacttgata aggaagctga agggtgatat taccttggc  
481 cctcactgc aactgaacac atttctagt tttaggtgg ccccgctgg ctaactgct  
541 gtggagttt caagggcata gaatcgtct ttacacaatt aaaagaagat gctgttaat  
601 ctgaggatcc tgtaaacaa tgcagcttt agaaatggc acaactcat ggtcgaaat  
661 ttccggtgtg gacaaccact acaaaataaa gtgcagctga agggccgtga ccttcact  
721 ctaaaaact ttaccggaga agaaataaa tatatgctat ggctatcagc agatctgaaa  
781 ttaggataa aacagaaagg agagtattg ccttatgc aagggaagtc cttaggcag  
841 attttgaga aaagaagtc tcgaacaaga ttgtctacag aaacaggctt gcactctg  
901 ggaggacatc ctgttttct taccacacaa gatattcatt tgggtgtgaa tgaaagtctc  
961 acggacacgg cccgtgtatt gtctagcatg gcagatgcag tattggctcg agtgtataaa  
1021 caatcagatt tggacaccct tgctaaagaa gcatccatcc caattatcaa tgggctgtca  
1081 gatttgtacc atcctatcca gatcctggct gattacctca cgctccagga aactatagc  
1141 tctctgaaag gtctaccct cagctggatc ggggatggga acaatctct gcactccatc  
1201 atgatgagcg cagcgaaatt cggaatgcac ctcaggcag ctactcaaa gggttatgag  
1261 ccggatgcta gtgtaacaa gtggcagag cagtatgcca aagagaatgg taccaagctg  
1321 ttctgacaa atgatccatt ggaagcagcg catggaggca atgtattaat tacagacact  
1381 tggataagca tgggacaaga agaggagaag aaaaagcggc tccaggctt ccaagggtac  
1441 caggttaca tgaagactgc taaagtgtc gcctctgact ggacatttt acactgctg  
1501 ccagaaagc cagaagaagt ggaatgatga gtctttatt ctctcgatc actagtgtc

1561 ccagaggcag aaaacagaaa gtggacaatc atggctgtca tgggtccct gctgacagat

1621 tactcacctc agctccagaa gcctaaattt tgatgttg tg ttactgtca agaaagaagc

1681 aatgttctc agtaacagaa tgagttggtt tatggggaaa agagaagaga atctaaaaaa

1741 taaacaaatc cctaacacgt ggtatgggtg aaccgtatga tatgcttgc catttgaaa

1801 ctttcttaa gccttaatt taagtgtga tgcactgtaa tacgtgctta actttgctta

1861 aactctctaa ttccaattt ctgagttaca tttagatac atattaatta tcatatacat

1921 ttacttc

**Figure 20**

**$\alpha$ -L-iduronidase**

**mRNA**

1 gtcacatggg gtgcgcgcc agactccgac ccggaggcgg aaccggcagt gcagcccga  
61 gccccgcagt ccccgagcac gcgtagccat gcgccccctg cccccccg cgcgctgct  
121 ggcgtctctg gcctcgctcc tggccgcgcc ccggtggcc ccggccgagg ccccgcacct  
181 ggtgcagggt gacgcggccc gcgcgctgtg gcccctgcgg cgcttctgga ggagcacagg  
241 ctctgcccc ccgtgccac acagccaggc tgaccagtac gtctctagct gggaccagca  
301 gctcaacctc gcctatgtgg gcgcgctccc tcaccgcggc atcaagcagg tccggacca  
361 ctggctgctg gagcttgta ccaccagggg gtccactgga cggggcctga gctacaact  
421 caccacctg gacgggtact tggacctct cagggagaac cagctctcc cagggttga  
481 gctgatggg agcgcctcg gccactcac tgacttgag gacaagcagc aggtgttga  
541 gtggaaggac ttggtcca gctggccag gagataac gtaggtacg gactggcgca  
601 tgttccaag tggaactcg agacgtgaa tgagccagac caccagact ttgacaact  
661 ctcatgacc atgcaaggct tctgaacta ctacgatcc tgctcggagg gtctgcgcgc  
721 cgccagcccc gccctgcggc tgggaggccc cggcgactcc ttccacccc caccgcgatc  
781 cccgtgagc tggggcctcc tgcgccactg ccacgacggt accaactct tactgggga  
841 ggcgggcgtg cggctggact acatctccct ccacaggaag ggtgcgcga gctccatct  
901 catctggag caggagaagg tctgcgcga gcagatccg cagctctcc ccaagttgc  
961 ggacaccccc atttacaacg acgaggcga cccgctggtg ggctggtccc tgccacagcc  
1021 gtggaggcgc gacgtgacct acgcgccat ggtggtgaag gtcatcgcgc agcatcagaa  
1081 cctgtactg gccaacacca cctccgctt cccctacgc ctctgagca acgacaatgc  
1141 ctctgagc taccaccgc acccttcgc gcagcgacg ctaccgcgc gcttccaggt  
1201 caacaacacc cccccccg acgtgcagct gttgcgaag ccggtgtca cggccatggg  
1261 gctgctggcg ctgctggatg aggagcagct ctgggccgaa gtgtgcagg cggggaccgt  
1321 cctggacagc aaccacacgg tggcgctct ggccagcgc caccgcccc agggcccgcc  
1381 cgacgcctgg cgcgccggtg tgctgatcta cgcgagcgac gacacccgcg cccacccaa  
1441 ccgcagcgtc gcggtgacct tgcggtgcg cggggtgccc cccggcccg gctgtgtta  
1501 cgtcacgcgc tacctggaca acgggctctg cagccccgac ggcgagtggc ggcgctggg



1561 ccggcccgct tccccacgg cagagcagtt ccggcgcatg cgcgcggctg aggacccggt  
1621 ggccgcggcg ccccgccct taccgccgg cgccgcctg accctgcgc ccgcgctgcg  
1681 gctgccgtcg ctttgctgg tgcacgtgtg tgcgcgccc gagaagccgc ccgggcaggt  
1741 cacgcggctc cgcgccctgc ccctgacca agggcagctg gtctgtgt gtctggatga  
1801 acacgtgggc tccaagtgc tgtggacata cgagatccag ttctctcagg acggaaggc  
1861 gtacaccccg gtcagcagga agccatcgac ctcaacctc ttgtgttca gccagacac  
1921 aggtgctgtc tctggctct accgagttcg agccctggac tactggggcc gaccaggccc  
1981 cttctcgac cctgtccgt acctggaggt ccctgtgcca agagggccc catccccggg  
2041 caatccatga gcctgtgtg agccccagt gggtgcacct ccaccggcag tcagcgagct  
2101 ggggctgcac tgtgcccag ctgccctccc atcacccct ttgcaatata ttttatatt  
2161 ttattatatt ctttataatc ttgtaaaaa aaaaaaa

## Figure 21

### $\beta$ -glucosidase

#### mRNA

1 gctaacctag tgcctatagc taaggcaggt acctgcatcc ttgttttgt ttagtgatc  
61 ctctatcctt cagagactct ggaaccctg tggctcttc tcatctaata gaccctgagg  
121 ggatggagtt tcaagtcct tccagagagg aatgtccaa gccttgagt agggtaagca  
181 tcatggctgg cagcctcaca ggttgcttc tacttcaggc agtgctggtg gcatcagggtg  
241 cccgcccctg catccctaaa agcttcggct acagctcggg ggtgtgtgtc tgcaatgcca  
301 catactgtga ctctttgac ccccgacct ttctgccct tggtaacctc agccgctatg  
361 agagtacacg cagtgggcca cggtatggagc tgagtatggg gccatccag gctaatacaca  
421 cgggcacagg cctgtactg accctgcagc cagaacagaa gttccagaaa gtgaagggat  
481 ttgagggggc catgacagat gctgctgctc tcaacatctt tgccctgtca cccctgccc  
541 aaaatttct acttaaatc tacttctctg aagaaggaat cggtatatac atcatccggg  
601 taccatggc cagctgtgac ttctccatcc gcacctacac ctatgcagac accctgatg  
661 attccagtt gcacaacttc agcctcccag aggaagatac caagctcaag ataccctga  
721 ttaccgagc cctgcagttg gccagcgtc ccgttcact ccttgccagc cctggacat  
781 caccacttg gctcaagacc aatggagcgg tgaatgggaa ggggtcactc aaggagacg  
841 ccggagacat ctaccaccag acctgggcca gatacttgt gaagtctctg gatgcctatg  
901 ctgagcaca gttacagttc tgggcagtg cagctgaaa tgagcctct gctgggctgt  
961 tgagtggata cccctccag tgctgggtc tccccctga acatcagcga gacttcattg  
1021 cccgtgacct aggtcctacc ctgcacaaca gtactacca caatgtccgc ctactcatg  
1081 tggatgacca acgctgtctg ctgcccact gggcaaagg ggtactgaca gaccagaag  
1141 cagctaaata tgtcatggc attgctgtac attggtacct ggactttctg gctccagcca  
1201 aagccacct aggggagaca caccgctgt tcccaacac catgctctt gcctcagagg  
1261 cctgtgtggg ctcaagttc tgggagcaga gtgtgcgggt aggtcctgg gatcgagga  
1321 tgcagtacag ccacagcatc atcacgaacc tctgtacca tgggtcggc tggaccgact  
1381 ggaacctgc cctgaacccc gaaggaggac ccaattgggt gcgtaacttt gtcgacagtc  
1441 ccatcattgt agacatcacc aaggacacgt ttacaacaa gccatgttc taccacctg  
1501 gccacttcag caagttcatt cctgagggt cccagagagt ggggctgggt gccagtcaga

1561 agaacgacct ggacgcagtg gcactgatgc atcccgatgg ctctgctgtt gtggctgtgc  
1621 taaaccgctc ctctaaggat gtgcctctta ccatcaagga tcctgctgtg ggcttcctgg  
1681 agacaatctc acctggctac tccattcaca cctacctgtg gcatcgccag tgatggagca  
1741 gatactcaag gaggcactgg gctcagcctg ggcattaaag ggacagagtc agctcacacg  
1801 ctgtctgtga ctaaagaggg cacagcaggg ccagtgtag cttacagcga cgtaagccca  
1861 ggggcaatgg ttgggtgac tcactttccc ctctaggtgg tgcccagggc tggaggcccc  
1921 tagaaaaaga tcagtaagcc ccagtgcccc ccagcccc atgcttatgt gaacatgcgc  
1981 tgtgtgctgc ttgctttgga aactngcctg ggtccaggcc tagggtgagc tactgtccg  
2041 tacaaacaca agatcagggc tgagggtgag gaaaagaaga gactaggaaa gctgggcccc  
2101 aaactggaga ctgtttgtct ttctagaga tgcagaactg ggcccgtgga gcagcagtgt  
2161 cagcatcagg gcggaagcct taaagcagca gcgggtgtgc ccaggcacc agatgattcc  
2221 tatggacca gccaggaaaa atggcagctc ttaaaggaga aaatgtttga gccc

## Figure 22

### $\alpha$ -galactosidase

#### mRNA

1 aggttaatct taaaagccca ggttaccgc ggaaatttat gctgtccgt caccgtgaca  
61 atgcagctga ggaaccaga actacatctg ggctgcgcgc ttgcgttcg ctctctggcc  
121 ctggttcct gggacatccc tggggctaga gcactggaca atggattggc aaggacgcct  
181 accatgggct ggctgcactg ggagcgcttc atgtgcaacc ttgactgcca ggaagagcca  
241 gattcctgca tcagtgagaa gctctcatg gagatggcag agctcatggt ctcagaaggc  
301 tggaaggatg caggttatga gtacctctgc attgatgact gttgatggc tcccaaaga  
361 gattcagaag gcagactca ggcagaccct cagcgcttc ctcatgggat tcgccagcta  
421 gctaattatg ttcacagcaa aggactgaag ctagggtatt atgcagatgt tggaaataaa  
481 acctgcgcag gctccctgg gagtttggga tactacgaca ttgatgcca gacctttgct  
541 gactggggag tagatctgt aaaaattgat ggtgttact gtgacagttt ggaaaattg  
601 gcagatggtt ataagcacat gtcctggcc ctgaatagga ctggcagaag cattgtgtac  
661 tcctgtgagt ggctcttta tatgtggccc ttcaaaagc ccaattatac agaaatccga  
721 cagtactgca atactggcg aaattttgct gacattgatg attcctggaa aagtataaag  
781 agtatcttg actggacatc ttttaaccag gagagaattg ttgatgtgc tggaccaggg  
841 ggttgaatg accagatat gttagtatt ggcaacttg gcctcagctg gaatcagcaa  
901 gtaactcaga tggccctctg ggctatcatg gctgctcct tattcatgtc taatgacctc  
961 cgacacatca gccctcaagc caaagctctc cttcaggata aggacgtaat tgccatcaat  
1021 caggaccctt tgggcaagca aggttaccag cttagacagg gagacaactt tgaagtgtg  
1081 gaacgacctc tctcaggctt agcctgggct gtagctatga taaaccggca ggagattggt  
1141 ggacctcgct ctataccat cgcagttgct tcctgggta aaggagtggc ctgtaatcct  
1201 gcctgttca tcacacagct cctccctgtg aaaaggaagc tagggttcta tgaatggact  
1261 tcaaggftaa gaagtcacat aaatcccaca ggcactgttt tgcttcagct agaaaataca  
1321 atgcagatgt cattaaaaga ctactftaa